



Cardiogenic shock is a high mortality condition. However, survivors have a very good prognosis and a good quality of life. Improving survival requires a multidisciplinary, specialized and experienced medical team and a strategic approach with a fluid decision process. Mechanical circulatory support is a key tool in the specialized medical care pathway of these complex patients. Nevertheless, this technology is very demanding regarding technical and human resources, and without a proper and timely indication, a safe conduction and a solid long term plan, it becomes useless and expensive.

**EDUCATIONAL GOALS**

This intensive course will provide a comprehensive review of clinical knowledge and skills in veno-arterial ECMO and temporary ventricular assist devices in cardiogenic shock patients.

This course is designed to train 36 students during four days. The first day will count on an advanced hemodynamics physiology boot camp and a VA ECMO and VAD boot camp. The next three days the course will have lectures and high fidelity simulated clinical scenarios in small groups of six students.

**TARGET AUDIENCE**

Our target audience are specialists with experience in advanced heart failure/cardiogenic shock patients. Cardiologists, cardiac surgeons, cardiothoracic anesthesiologist and cardiac intensivist who are part of a heart transplant/ECMO VAD program or wishing to undertake a new program within their institutions.

**LEARNING OBJECTIVES**

At the conclusion of this course the participants will have improved their competences in:

* Evaluate the physiological compromise and the therapeutic window in cardiogenic shock patients.
* Recognize the right moment to implant a V-A ECMO or a temporary ventricular assist device.
* Understand the V-A ECMO and VAD physiology.
* Diagnose and manage common mechanical circulatory support complications.
* Optimize the decision process and the long term options in V-A ECMO and temporary VAD patients.

**Registration and certification**

Registration is $2500 American Dollars

Registration includes access to HARVI simulation software, Training materials, lunch and coffee

**Place and dates of the course**

Location: FCV International Hospital of Colombia. Bucaramanga, Colombia

Dates: 16 to 19 November 2017

**Contact**

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**Hotel information**

Registrants to the course will have a corporate discount in the following Hotels.

* Club Campestre de Bucaramanga.

<http://www.campestrebucaramanga.com/hotel/>

* Hotel Holiday inn Cacique Bucaramanga. <https://www.holidayinn.com/hotels/us/es/bucaramanga>

**COURSE PROGRAM**

**DAY 1 NOVEMBER, THURSDAY 16TH**

# MORNING SESSION:

# ADVANCED HEMODYNAMIC PHYSIOLOGY BOOT CAMP

Under Dr. Marc Dickstein’s direction, developer of HARVI, groups of 6 students with a trained instructor per group will work with HARVI, the advanced physiology simulator, to review and learn advanced hemodynamic physiology concepts. Each student will receive access to the HARVI simulator and the instructional materials. Each class will have exercises and the students will complete these exercises using the HARVI simulator.

1. 7:00 – 08:00 INTRODUCTION AND LEARNING OBJECTIVES
2. 08:00-12:00 PHYSIOLOGY TRAINING

VENTRICULAR FUNCTION AND VENOUS AND ARTERIAL ENGAGEMENT

ACUTE SHOCK

CHRONIC HEART FAILURE

FOCUS TREATMENT IN CARDIAC PERFORMANCE

CIRCULATION, LOW CARDIAC OUTPUT AND ORGAN DISFUNCTION

1. 12:00 – 14:00 LUNCH

# AFTERNOON SESSION: ECMO AND TEMPORARY VAD SESION

One introductory class and six wet lab sessions in groups of six students. Each wet lab will provide a practical learning activity focused in one concept or one skill related with the ECMO and temporary VAD hardware

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| 14:00-14:30 | **COMPONENTS AND VA ECMO CIRCUIT** |

SIMS SESSION 1:

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| 14:30-15:00 | **PUMPS** |
| 15:00-15:30 | **MEMBRANES** |
| 15:30-16:00 | **PUZZLE SESSION** |

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| 16:00-16:30 | COFFEE |

SIMS SESSION 2:

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| 16:30-17:00 | **CIRCUIT CHECK** |
| 17:00-17:30 | **BLEEDING AND AIR IN THE CIRCUIT** |
| 17:30-18:00 | **PUMP FAILURE** |

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|  | FREE TIME |

**DAY 2 NOVEMBER, FRIDAY 17TH**

# MORNING SESSION: FIRST DAY OF USUAL VA ECMO

**Complete group (36 students)**

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| 8:00-8:20 | **CLINIC CASE ACUTE CORONARY SYNDROME** |
| 8:20-8:40 | **MECHANICALLY CIRCULATORY SUPPORT IN ACUTE CORONARY SYNDROME** |
| 8:40-9:00 | **DISCUSSION** |

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|  | **Group A (3 groups, 6 students)** | **Group B (18 students)** |
| 9:00-9:30 | **9:00-9:45 SIM SESSION**  **9:45-10:30 SIM SESSION** | PERIFERIC CANULATION TIPS AND PITFALLS |
| 9:30-10:00 | STARTING ECMO VA |
| 10:00-10:30 | ANTICOAGULATION IN ECMO VA |

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| 10:30-10:45 | BREAK |

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| 10:45-11:15 | PERIFERIC CANULATION TIPS AND PITFALLS | **9:00-9:45 SIM SESSION**  **9:45-10:30 SIM SESSION** |
| 11:15-11:45 | STARTING ECMO VA |
| 11:45-12:15 | ANTICOAGULATION IN ECMO VA |

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| 12:15 - 14:00 | LUNCH |

# AFTERNOON SESSION: CHALLENGING SCENARIOS IN VA ECMO

**Complete group (36 students)**

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| 14:00-14:30 | **SHOCK POST-CARDIOTOMY** |

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|  | **Group A (3 groups, 6 students)** | **Group B (18 students)** |
| 14:30-15:00 | **14:30-15:15 SIM SESSION**  **15:15-16:00 SIM SESSION** | E-CPR |
| 15:00-15:30 | ECMO IN BLEEDING PATIENT |
| 15:30-16:00 | GOALS IN VA ECMO MANAGEMENT |

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| 16:00-16:15 | BREAK |

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| 16:15-16:45 | E-CPR | **14:30-15:15 SIM SESSION**  **15:15-16:00 SIM SESSION** |
| 16:45-17:15 | ECMO IN BLEEDING PATIENT |
| 17:15-17:45 | GOALS IN VA ECMO MANAGEMENT |

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|  | FREE TIME |

**DAY 3 NOVEMBER, SATURDAY 17TH**

# MORNING SESSION: LAST DAY OF USUAL VA ECMO

**Complete group (36 students)**

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| 8:00-8:30 | **INDICATIONS AND OUTCOMES IN TEMPORARY VAD (LEVITRONICS)** |

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|  | **Group A (3 groups, 6 students)** | **Group B (18 students)** |
| 8:30-9:00 | **8:30-9:15 SIM SESSION**  **9:15-10:00 SIM SESSION 12** | ECMO TRANSPORT AND PROCEDURES DURING ECMO |
| 9:00-9:30 | WEANING AND DECANULATION |
| 9:30-10:00 | WEANIG FAILURE (TEMPORAL SUPPORT VS TRANSPLANT VS WITHDRAW TO PALIATIVE CARE) |

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| 10:00-10:15 | BREAK |

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| 10:15-10:45 | ECMO TRANSPORT AND PROCEDURES DURING ECMO | **8:30-9:15 SIM SESSION**  **9:15-10:00 SIM SESSION 12** |
| 10:45-11:15 | WEANING AND DECANULATION |
| 11:15-11:45 | WEANIG FAILURE (TEMPORAL SUPPORT VS TRANSPLANT VS WITHDRAW) |

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| 11:45-12:15 | **ACUTE DESCOMPENSATION IN CHRONIC HEART FAILURE (INTERMACS 2 AND 3)** |

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| 12:15 - 14:00 | LUNCH |

# AFTERNOON SESSION: TEMPORARY VAD HOW TO GET IT SIMPLE

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|  | **Group A (3 groups, 6 students)** | **Group B (18 students)** |
| 14:00-14:20 | **SIM SESSION**  **SIM SESSION** | RIGHT VENTRICULAR EVALUATION RV PERFORMANCE EVALUATION AND OPTIMIZATION |
| 14:20-14:40 | MECHANICALLY CIRCULATORY SUPPORT IN RIGHT VENTRICULAR FAILURE |
| 14:40-15:00 | LVAD MANAGEMENT |

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| 15:00-15:20 | BREAK |

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| 15:20-15:50 | RIGHT VENTRICULAR EVALUATION RV PERFORMANCE EVALUATION AND OPTIMIZATION | **SIM SESSION**  **SIM SESSION** |
| 15:50-16:20 | MECHANICALLY CIRCULATORY SUPPORT IN RIGHT VENTRICULAR FAILURE |
| 16:20-16:50 | LVAD MANAGEMENT |

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| 16:50-17:20 | **STROKE DURING MECHANICALLY CIRCULATORY SUPPORT** |

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|  | FREE TIME |

**DAY 4 NOVEMBER, SUNDAY 17TH**

# MORNING SESSION: CLOSING THE CIRCLE. LONG TERM OPTIONS AND CHALLENGES

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| 8:00-8:30 | **UP TO DATE IN LONG TERM LVAD** |
| 8:30-9:00 | **PRIMARY GRAFT DISFUNCTION (CLINIC CASE)** |
| 9:00-9:30 | **LVAD LONG TERM COMPLICATIONS** |
| 9:30-10:00 | **VASOPLEJIC SYNDROME (CLINIC CASE)** |
| 10:15-10:30 | **BREAK** |
| 10:30-11:00 | **WITHDRAWAL MECHANICALLY CIRCULATORY SUPPORT (CLINICAL CASE)** |
| 11:00-11:20 | **CLOSING** |